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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/888,464	06/25/2001	Douglas E. Bise	K-1816	8703

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EXAMINER

HAWKINS GAY, JENNIFER M

ART UNIT

PAPER NUMBER

3672

DATE MAILED: 07/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/888,464

Applicant(s)

BIESE ET AL.

Examiner

Jennifer H Gay

Art Unit

3672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on _____.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-36 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-36 is/are rejected.

7) Claim(s) 5,8 and 23 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____.

2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 5, 8, and 23 are objected to because of the following informalities: in line 5 of claim 5, the vertical height "1/16-1/8" has not been accompanied by units (the examiner is assuming that the units were meant to be inches as recited in claim 9, in line 2 of claim 8, "an" should be changed to a, and in line 6 of claim 23, a comma should be added after "edges" and "strata". Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 6-8, 14, 15, 19-28, and 30-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Weaver et al. (US 2,894,726).

Regarding claims 1, 19, 22-24, 26, 32, and 36: Weaver et al. discloses a rotary drag bit. The bit includes the following features:

- An elongate body (12) with a peripheral surface.
- A monolithic hard insert (18) affixed to the axial forward end of the body and having a central longitudinal axis.
- Three discrete leading cutting edges (14) that are stepped.

It should be noted that the functional recitation that the steps improve the disintegration of the earth strata has not been given patentable weight because it is narrative in form. In order to be given weight, a functional recitation must be expressed as a "means" for performing the specified function, as set forth in 35 USC 112, 6th paragraph, and must be supported by recitation in the claim of sufficient structure to warrant the presence of the functional language. *In re Fuller*, 1929 C.D. 172; 388 O.G. 279. It has been held that the term "integral" is sufficiently broad to embrace constructions united by such means as fastening and welding. *In re Hotte*, 177 USPQ 326, 328 (CCPA 1973).

Regarding claims 2, 8, and 33: The stepped cutting edge includes an upper and lower step (28).

Regarding claim 3: The leading cutting edge of the upper and lower step are parallel (see Figures 1 and 2).

Regarding claims 6 and 28: The bit further includes a central longitudinal axis that passes through the insert and each of the leading cutting edges begins at a point radially outward from the central axis and extend away from that axis (see Figure 1 and 2).

Regarding claim 7: The leading cutting edges are formed by a corresponding leading edge of the insert that intersects the top surface of the insert (see Figure 1 and 2).

Regarding claims 14, 20, 30, and 34: The upper and lower step have generally planar rake surfaces (see Figures 1 and 2).

Regarding claims 15, 21, 31, and 35: The angle of the lower rake surface is different from the angle of the upper rake surface (see Figure 28).

Regarding claim 25: The insert further includes a side clearance cutting edge (see Figures 1 and 3).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4, 5, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weaver et al. (US 2,894,726).

Regarding claim 4: Weaver et al. discloses all of the limitations of the above claims except for the leading cutting edge of the lower step having a relief angle of about 20 degrees. In column 8, lines 35-45, it is taught however that the upper step has a relief angle of about 20 degrees. It would have been considered obvious to one of ordinary skill in the art, at the time the

invention was made, to have formed the bit of Weaver et al. so that the leading cutting edge of the lower step also had a relief angle of about 20 degrees in order to have ensured a consistently drilled hole.

Regarding claims 5 and 9: Weaver et al. discloses all of the limitations of the above claims except for the height of the steps being specifically between 1/16 and 1/8 of an inch. In column 5, lines 40-45, it is taught however that the height of the steps is selected to reduce the wobbling and walking of the bit. Therefore, it would have been considered obvious to have formed the bit of Weaver et al. so that the steps were of a height to prevent wobbling and walking. Further, it would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have formed the bit of Weaver so that the height of the steps being specifically between 1/16 and 1/8 of an inch, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

6. Claims 10-12, 16, 17, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weaver et al. (US 2,894,726) in view of Brady (US 5,180,022).

Weaver et al. discloses all of the limitations of the above claims except for the cutting edges of the different steps having a rake angle between 0 and negative 15 degrees. In column 5, lines 20-60, Brady teaches a rotary mining tool that includes an insert with a rake angle between negative 5 and 35 degrees. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have formed the drill bit of Weaver et al so that the cutting edges of the different steps having a rake angle between 0 and negative 15 degrees as taught by Brady in order to have reduced the tensile load on the insert thus lengthening the life of the bit.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weaver et al. (US 2,894,726) in view of Nance (US 5,269,387).

Weaver et al. discloses all of the limitations of the above claims except for the upper step cutting edge having a relief angle of about 30 degrees and the lower step having a relief angle of

about 21 degrees. In column 2, lines 20-40, Nance teaches a first relief angle between 30 and 60 degrees and a second relief angle between 18 and 35 degrees; the two different locations could broadly be considered an upper and lower step. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have formed the cutting edges of the steps of Weaver et al. so that the upper step cutting edge having a relief angle of about 30 degrees and the lower step having a relief angle of about 21 degrees as taught by Nance in order to have provided a drill bit that had significantly improved effectiveness when drilling elongated roof bolt holes (see col. 2, lines 60-65).

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weaver et al. (US 2,894,726) in view of Haga (US 6,145,606).

Weaver et al. discloses all of the limitations of the above claims except for the bit body having at least one scalloped portion that included a debris port and debris breaker. As seen in Figure 1, Haga teaches a roof drill bit that includes a scalloped portion in the bit body where the scalloped portion includes a debris port (30) and a debris breaker. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have included a at least one scalloped portion that included a debris port and debris breaker as taught by Haga in the bit of Weaver et al. in order to have provided a means for removing debris from around the bit as the hole was being drilled.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The remaining references made of record disclose various other rotary drill bits with multiple cutting edges.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer H Gay whose telephone number is (703) 308-2881. The examiner can normally be reached on Monday-Friday, 6:30-4:00.

Art Unit: 3672

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on (703) 308-2151. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7687 for regular communications and (703) 305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

JHG *JHG*
July 12, 2002

DB
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